

Sequence Listing
SEQUENCE LISTING

<110> THE GOVERNMENT OF THE UNITED STATES OF AMERICA AS
REPRESENTED BY THE SECRETARY OF THE DEPARTMENT OF HEALTH AND
HUMAN SERVICES
Tsai, Robert Y.L.
McKay, Ronald D.G.

<120> METHODS FOR CONTROLLING PROLIFERATION OF CELLS

<130> 4239-66642

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<151> 2003-10-01

<150> 60/442,005

<151> 2003-01-22

<150> 60/415,867

<151> 2002-10-02

<160> 14

<170> PatentIn version 3.2

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Sequence Listing

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Sequence Listing

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Sequence Listing

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35 40 45

Gly Val Pro Asn Ser Ala Pro Phe Lys Glu Ala Leu Leu Arg Glu Ala
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Glu Leu Arg Lys Gln Gln Leu Glu Glu Leu Lys Gln Gln Gln Lys Leu
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Asp Arg Gln Lys Glu Gln Glu Arg Lys Arg Lys Leu Glu Val Ser Pro
85 90 95

Gly Asp Glu Gln Ser Asn Val Glu Thr Arg Glu Glu Ser Asp Glu Pro
100 105 110

Lys Arg Lys Lys Ala Lys Ala Gly Lys Gln Asn Pro Lys Lys Leu His
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130 135 140

Val Leu Asp Ala Arg Asp Pro Leu Gly Cys Arg Cys Pro Gln Ile Glu
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Glu Ala Val Ile Gln Ser Gly Ser Lys Lys Leu Ile Leu Val Leu Asn
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Lys Ser Asp Leu Val Pro Lys Glu Asn Leu Glu Asn Trp Leu Asn Tyr
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Leu Asn Lys Glu Leu Pro Thr Val Val Phe Lys Ala Ser Thr Asn Leu
195 200 205

Lys Asn Arg Lys Thr Phe Lys Ile Lys Lys Lys Val Val Pro Phe
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Gln Ser Lys Ile Cys Cys Gly Lys Glu Ala Leu Trp Lys Leu Leu Gly
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Asp Phe Gln Gln Ser Cys Gly Lys Asp Ile Gln Val Gly Val Ile Gly
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Sequence Listing															
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Pro	Ala	Ser	Trp	Asn	His	Ser	Leu	His	Phe	Asn	Glu	Asn	Ile	Ala	Ala
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Val	Glu	Glu	Ser	Pro	Ser	Gln	Thr	Glu	Asp	Gln	Gln	Asp	Ala	Asp	Asp
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Gln	Glu	Asn	Gly	Ser	Gly	Glu	Arg	Asn	Ala	Glu	Ile	Ser	Asp	Val	Ala
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Sequence Listing

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Arg Lys Glu Ala Lys Lys Gln Gly His Lys Lys Pro Arg Lys Asp Pro
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Gly Val Pro Asn Ser Ala Pro Phe Lys Glu Ala Leu Leu Arg Glu Ala
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Glu Leu Arg Lys Gln Arg Leu Glu Glu Leu Lys Gln Gln Gln Lys Leu
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Asp Arg Gln Lys Glu Leu Glu Lys Lys Arg Lys Leu Glu Thr Asn Pro
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Asp Ile Lys Pro Ser Asn Val Glu Pro Met Glu Lys Glu Phe Gly Leu
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Cys Lys Thr Glu Asn Lys Ala Lys Ser Gly Lys Gln Asn Ser Lys Lys
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Sequence Listing

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 180 185 190
 Asn Tyr Leu Lys Lys Glu Leu Pro Thr Val Val Phe Arg Ala Ser Thr
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Sequence Listing

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Gly Glu Ala Leu Ser Glu Glu Thr Thr Ala Gly Glu Gln Ser Thr Arg
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20 25 30

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35 40 45

Gly Val Pro Asn Ser Ala Pro Phe Lys Glu Ala Leu Leu Arg Glu Ala
50 55 60

Glu Leu Arg Lys Gln Xaa Leu Glu Glu Leu Lys Gln Gln Gln Lys Leu
65 70 75 80

Asp Arg Gln Lys Glu Xaa Glu Xaa Lys Arg Lys Leu Glu Xaa Xaa Pro
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Xaa Xaa Xaa Xaa Ser Asn Val Glu Xaa Xaa Glu Xaa Xaa Xaa Xaa Xaa
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Xaa Xaa Xaa Xaa Xaa Lys Ala Lys Xaa Gly Lys Gln Asn Xaa Lys Lys
115 120 125

Leu Xaa Cys Gln Glu Leu Lys Lys Val Ile Glu Ala Ser Asp Xaa Val
130 135 140

Leu Glu Val Leu Asp Ala Arg Asp Pro Leu Gly Cys Arg Cys Pro Gln
145 150 155 160

Xaa Glu Glu Ala Xaa Xaa Gln Ser Gly Xaa Lys Lys Leu Xaa Leu Xaa
165 170 175

Leu Asn Lys Ser Asp Leu Val Pro Lys Glu Asn Leu Glu Xaa Trp Leu
180 185 190

Xaa Tyr Leu Xaa Lys Glu Leu Pro Thr Val Val Phe Xaa Ala Ser Thr
195 200 205

Xaa Xaa Lys Xaa Xaa Xaa Lys Xaa Thr Xaa Xaa Xaa Lys Xaa Lys Xaa
210 215 220

Xaa Xaa Xaa Pro Phe Xaa Ser Xaa Xaa Cys Xaa Gly Lys Glu Xaa Leu
Page 19

Sequence Listing																	
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			260					265					270				
Ser	Leu	Lys	Gln	Glu	Xaa	Xaa	Cys	Xaa	Val	Gly	Xaa	Ser	Met	Gly	Leu		
		275					280					285					
Thr	Arg	Ser	Met	Gln	Xaa	Val	Pro	Leu	Asp	Lys	Gln	Ile	Thr	Ile	Ile		
	290					295					300						
Asp	Ser	Pro	Xaa	Xaa	Ile	Xaa	Ser	Pro	Xaa	Asn	Ser	Xaa	Xaa	Ala	Leu		
305					310					315					320		
Ala	Leu	Arg	Ser	Pro	Ala	Ser	Ile	Glu	Xaa	Xaa	Xaa	Pro	Xaa	Glu	Ala		
				325					330					335			
Ala	Ser	Ala	Ile	Leu	Ser	Gln	Ala	Asp	Xaa	Xaa	Gln	Val	Val	Leu	Lys		
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Tyr	Thr	Val	Pro	Xaa	Tyr	Xaa	Xaa	Ser	Leu	Xaa	Phe	Phe	Thr	Xaa	Leu		
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	370					375					380						
Xaa	Ala	Ala	Lys	Leu	Xaa	Trp	Ser	Glu	Trp	Thr	Gly	Ala	Ser	Leu	Xaa		
385					390					395					400		
Tyr	Tyr	Cys	His	Pro	Pro	Xaa	Ser	Trp	Xaa	Xaa	Xaa	Xaa	Xaa	Phe	Asn		
				405					410					415			
Glu	Xaa	Ile	Xaa	Xaa	Xaa	Met	Lys	Xaa	Gly	Phe	Asn	Leu	Glu	Glu	Leu		
			420					425					430				
Glu	Lys	Asn	Asn	Ala	Xaa	Ser	Ile	Xaa	Xaa	Xaa	Lys	Gly	Pro	His	Leu		
		435					440					445					
Xaa	Asn	Xaa	Ile	Leu	Phe	Xaa	Ser	Ser	Gly	Leu	Thr	Asn	Gly	Ile	Xaa		
	450					455					460						
Xaa	Glu	Lys	Asp	Ile	Xaa	Glu	Glu	Xaa	Pro	Xaa	Xaa	Xaa	Glu	Xaa	Xaa		
465					470					475					480		

Sequence Listing

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500 505 510

Xaa Glu Xaa Xaa Xaa Xaa Xaa Xaa Thr Ala Xaa Xaa Xaa Ser Xaa Xaa
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g atg aag att aga cac aaa aac aaa aaa cca ggt aaa ggt tcc aaa ggc 169
Met Lys Ile Arg His Lys Asn Lys Lys Pro Gly Lys Gly Ser Lys Gly
1 5 10 15
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Cys Lys Lys Pro Ala Arg Gln Asn Gly Lys Lys Val Thr Ser Arg Pro
20 25 30
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Ser Ser Ala Pro Gln Ile Val His Gly Asn Asp His Ala Ser Arg Glu
35 40 45
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Ala Glu Leu Lys Lys Lys Arg Val Glu Glu Met Arg Glu Lys Gln Gln
50 55 60
gtt gcc cgg gag caa gag aga cag aga cac agg acc atg gag agc tat 361
Val Ala Arg Glu Gln Glu Arg Gln Arg His Arg Thr Met Glu Ser Tyr
65 70 75 80
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Cys Gln Asp Val Leu Lys Arg Gln Gln Glu Phe Glu Gln Lys Glu Glu
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gtt ttg cag gaa tta aac atg ttt cct cag ttg gat gat gag gcc aca 457
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Sequence Listing															
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Arg	Lys	Ala	Tyr	Tyr	Lys	Glu	Phe	Arg	Lys	Val	Val	Glu	Tyr	Ser	Asp
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Lys	Trp	Leu	Glu	Tyr	Leu	Leu	Asn	Glu	Leu	Pro	Thr	Val	Ala	Phe	Lys
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Ala	Ser	Thr	Gln	His	His	Gln	Val	Lys	Asn	Leu	Thr	Arg	Cys	Lys	Val
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Pro	Val	Asp	Gln	Ala	Ser	Glu	Ser	Leu	Leu	Lys	Ser	Arg	Ala	Cys	Phe
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Sequence Listing

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Gly	Gly	Val	Tyr	Ser	Gln	Glu	Gln	Ala	Ala	Lys	Ala	Val	Leu	Ala	Asp	
	370					375					380					
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Trp	Val	Ser	Gly	Lys	Ile	Ser	Phe	Tyr	Thr	Leu	Pro	Pro	Pro	Thr	His	
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Thr	Leu	Pro	Thr	His	Leu	Ser	Ala	Glu	Ile	Val	Lys	Glu	Met	Thr	Glu	
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Leu	Gln	Lys	Arg	Ser	Asp	Lys	Ile	Ala	Thr	Lys	Leu	Ser	Asp	Ser	Met	
545					550					555					560	
atg	tcc	atg	ctt	gac	ctc	tct	ggc	aac	tcc	gat	gac	tgt	gca	ggt	gac	1849
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				565					570					575		
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35 40 45

Ala Glu Leu Lys Lys Lys Arg Val Glu Glu Met Arg Glu Lys Gln Gln
50 55 60

Val Ala Arg Glu Gln Glu Arg Gln Arg His Arg Thr Met Glu Ser Tyr
65 70 75 80

Cys Gln Asp Val Leu Lys Arg Gln Gln Glu Phe Glu Gln Lys Glu Glu
85 90 95

Val Leu Gln Glu Leu Asn Met Phe Pro Gln Leu Asp Asp Glu Ala Thr
100 105 110

Arg Lys Ala Tyr Tyr Lys Glu Phe Arg Lys Val Val Glu Tyr Ser Asp
115 120 125

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130 135 140

Phe Gln Met Glu Glu Thr Val Leu Arg Ala Glu Gly Asn Lys Lys Leu
145 150 155 160

Val Leu Val Leu Asn Lys Ile Asp Leu Val Pro Lys Glu Ile Val Glu
165 170 175

Lys Trp Leu Glu Tyr Leu Leu Asn Glu Leu Pro Thr Val Ala Phe Lys
180 185 190

Ala Ser Thr Gln His His Gln Val Lys Asn Leu Thr Arg Cys Lys Val
195 200 205

Pro Val Asp Gln Ala Ser Glu Ser Leu Leu Lys Ser Arg Ala Cys Phe
210 215 220

Sequence Listing

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        260                265                270

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        275                280                285

    Asp Lys Phe Ile Arg Leu Leu Asp Ala Pro Gly Ile Val Pro Gly Pro
        290                295                300

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    305                310                315                320

    Leu Ala Asp Pro Val Thr Pro Val Glu Thr Ile Leu Gln Arg Cys Asn
        325                330                335

    Leu Glu Glu Ile Ser Ser Tyr Tyr Gly Val Ser Gly Phe Gln Thr Thr
        340                345                350

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        355                360                365

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        370                375                380

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    385                390                395                400

    Thr Leu Pro Thr His Leu Ser Ala Glu Ile Val Lys Glu Met Thr Glu
        405                410                415

    Val Phe Asp Ile Glu Asp Thr Glu His Ala Asn Glu Asp Thr Met Glu
        420                425                430

    Cys Leu Ala Val Gly Glu Ser Asp Glu Leu Leu Gly Asp Met Asp Pro
        435                440                445

    Gln Glu Met Glu Val Arg Trp Leu His Ser Pro Leu Val Lys Ile Ala
        450                455                460

    Asp Ala Ile Glu Asn Arg Ser Thr Val Tyr Lys Ile Gly Asn Leu Thr
    465                470                475                480

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Sequence Listing

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Met Val
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aag ccc aag tac aaa gga cgg agc acc atc aac cgc tcg gcg gcc agc 164
Lys Pro Lys Tyr Lys Gly Arg Ser Thr Ile Asn Arg Ser Ala Ala Ser
5 10 15

acc aac cca gat cga gta cag gga gct ggc ggc caa aac atg agg gat 212
Thr Asn Pro Asp Arg Val Gln Gly Ala Gly Gly Gln Asn Met Arg Asp
20 25 30

cgg ggc aca att cgg cgc ctg aat atg tac agg caa aag gag cgc agg 260
Arg Gly Thr Ile Arg Arg Leu Asn Met Tyr Arg Gln Lys Glu Arg Arg
35 40 45 50

aac agt cgt ggt aaa gtg att aag cca ctg cag tat cag tca act gtg 308
Asn Ser Arg Gly Lys Val Ile Lys Pro Leu Gln Tyr Gln Ser Thr Val
55 60 65

gct tct ggc aca gtg gcc cga gtg gag ccg aat att aaa tgg ttt gga 356

Sequence Listing															
Ala	Ser	Gly	Thr	Val	Ala	Arg	Val	Glu	Pro	Asn	Ile	Lys	Trp	Phe	Gly
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aat	act	cgt	gtg	atc	aag	cag	gca	tca	tta	caa	aaa	ttt	caa	gag	gaa
Asn	Thr	Arg	Val	Ile	Lys	Gln	Ala	Ser	Leu	Gln	Lys	Phe	Gln	Glu	Glu
		85					90					95			
atg	gat	aaa	gtt	atg	aag	gat	cca	tac	aaa	gtt	gtc	atg	aaa	caa	agc
Met	Asp	Lys	Val	Met	Lys	Asp	Pro	Tyr	Lys	Val	Val	Met	Lys	Gln	Ser
	100					105					110				
aaa	tta	ccg	atg	tct	ctt	ctg	cac	gat	cga	atc	cag	cct	cat	aac	gca
Lys	Leu	Pro	Met	Ser	Leu	Leu	His	Asp	Arg	Ile	Gln	Pro	His	Asn	Ala
115					120					125					130
aaa	gtc	cac	att	ctt	gat	act	gaa	agc	ttt	gaa	agt	aca	ttt	ggc	cca
Lys	Val	His	Ile	Leu	Asp	Thr	Glu	Ser	Phe	Glu	Ser	Thr	Phe	Gly	Pro
			135						140					145	
aag	tca	cag	aga	aag	cgg	cca	aac	ttg	ttt	gca	agt	gat	atg	caa	tcc
Lys	Ser	Gln	Arg	Lys	Arg	Pro	Asn	Leu	Phe	Ala	Ser	Asp	Met	Gln	Ser
			150					155					160		
ctt	cta	gaa	aac	gct	gaa	atg	tct	act	gag	agc	tat	gac	cag	ggc	aag
Leu	Leu	Glu	Asn	Ala	Glu	Met	Ser	Thr	Glu	Ser	Tyr	Asp	Gln	Gly	Lys
		165					170					175			
gac	cgt	gat	ttg	gtg	atg	gag	gac	act	ggg	gta	aga	aat	gaa	gct	caa
Asp	Arg	Asp	Leu	Val	Met	Glu	Asp	Thr	Gly	Val	Arg	Asn	Glu	Ala	Gln
	180					185					190				
gaa	gag	ata	tat	aaa	aaa	ggg	cag	tca	aaa	aga	ata	tgg	gga	gaa	ctc
Glu	Glu	Ile	Tyr	Lys	Lys	Gly	Gln	Ser	Lys	Arg	Ile	Trp	Gly	Glu	Leu
195					200					205					210
tac	aag	gtg	ata	gac	tca	tca	gat	gtt	gtc	gtt	caa	gtc	ctt	gac	gct
Tyr	Lys	Val	Ile	Asp	Ser	Ser	Asp	Val	Val	Val	Gln	Val	Leu	Asp	Ala
				215				220					225		
aga	gat	ccg	atg	ggc	act	cgt	tcc	ccc	cac	atc	gaa	gct	tac	ttg	aaa
Arg	Asp	Pro	Met	Gly	Thr	Arg	Ser	Pro	His	Ile	Glu	Ala	Tyr	Leu	Lys
			230					235					240		
aag	gaa	aaa	ccc	tgg	aaa	cat	ctc	att	ttt	gta	ctc	aat	aag	tgt	gac
Lys	Glu	Lys	Pro	Trp	Lys	His	Leu	Ile	Phe	Val	Leu	Asn	Lys	Cys	Asp
		245					250					255			
ctt	gtt	cca	act	tgg	gca	acc	aaa	cga	tgg	gtt	gct	gtg	ctc	tcc	cag
Leu	Val	Pro	Thr	Trp	Ala	Thr	Lys	Arg	Trp	Val	Ala	Val	Leu	Ser	Gln
	260				265					270					
gac	tac	cca	aca	ctg	gct	ttc	cat	gcg	agc	ctc	acc	aat	ccc	ttt	ggg
Asp	Tyr	Pro	Thr	Leu	Ala	Phe	His	Ala	Ser	Leu	Thr	Asn	Pro	Phe	Gly
275				280						285					290
aag	gga	gca	ttc	att	cag	ctt	ctg	cgg	cag	ttt	ggg	aag	ttg	cac	aca
Lys	Gly	Ala	Phe	Ile	Gln	Leu	Leu	Arg	Gln	Phe	Gly	Lys	Leu	His	Thr
			295					300					305		
gac	aag	aaa	caa	atc	agt	gtt	ggg	ttc	att	ggc	tat	cca	aat	gta	ggc
Asp	Lys	Lys	Gln	Ile	Ser	Val	Gly	Phe	Ile	Gly	Tyr	Pro	Asn	Val	Gly
			310					315					320		

Sequence Listing

aag Lys	agc Ser	tct Ser 325	gtg Val	att Ile	aat Asn	aca Thr	tta Leu 330	cga Arg	tcc Ser	aag Lys	aaa Lys	gtt Val 335	tgc Cys	aac Asn	gtg Val	1124
gcc Ala	ccc Pro 340	att Ile	gct Ala	gga Gly	gaa Glu	aca Thr 345	aag Lys	gtc Val	tgg Trp	cag Gln	tat Tyr 350	att Ile	acc Thr	ttg Leu	atg Met	1172
cgt Arg 355	cgt Arg	ata Ile	ttc Phe	ctg Leu	att Ile 360	gac Asp	tgc Cys	cct Pro	ggt Gly	gtg Val 365	gtt Val	tac Tyr	cca Pro	tct Ser	gag Glu 370	1220
gac Asp	tca Ser	gag Glu	acc Thr	gac Asp 375	att Ile	gtg Val	ctc Leu	aaa Lys	gga Gly 380	gtg Val	gtt Val	caa Gln	gtt Val	gag Glu 385	aaa Lys	1268
att Ile	aaa Lys	gct Ala	cct Pro 390	caa Gln	gac Asp	cac His	att Ile	ggt Gly 395	gct Ala	gtc Val	ctt Leu	gaa Glu	cga Arg 400	gca Ala	aag Lys	1316
cca Pro	gag Glu	tat Tyr 405	atc Ile	agc Ser	aag Lys	acg Thr	tac Tyr 410	aag Lys	att Ile	gag Glu	tcc Ser	tgg Trp 415	gag Glu	aac Asn	gcg Ala	1364
gag Glu	gac Asp 420	ttt Phe	ctt Leu	gag Glu	aag Lys	cta Leu 425	gct Ala	ctc Leu	cgc Arg	act Thr	ggg Gly 430	aag Lys	tta Leu	ctg Leu	aag Lys	1412
ggt Gly 435	gga Gly	gag Glu	cct Pro	gac Asp	atg Met 440	ctg Leu	act Thr	gtg Val	agc Ser	aag Lys 445	atg Met	gtt Val	ctc Leu	aat Asn	gac Asp 450	1460
tgg Trp	cag Gln	aga Arg	ggc Gly 455	cga Arg	atc Ile	cct Pro	ttc Phe	ttt Phe	gtc Val 460	aag Lys	ccg Pro	ccc Pro	aat Asn	gca Ala 465	gag Glu	1508
cta Leu	ccg Pro	acc Thr	gat Asp 470	tcc Ser	cag Gln	ctt Leu	cca Pro	cca Pro 475	tcc Ser	tca Ser	cca Pro	ttg Leu	gaa Glu 480	gtt Val	ccc Pro	1556
aca Thr	gaa Glu	aca Thr 485	acc Thr	cag Gln	aac Asn	aac Asn	cca Pro 490	gaa Glu	gaa Glu	gag Glu	acc Thr	aca Thr 495	gaa Glu	aca Thr	gaa Glu	1604
gtt Val	gaa Glu 500	agg Arg	tca Ser	gac Asp	tct Ser	atc Ile 505	act Thr	gaa Glu	aag Lys	gag Glu	cca Pro 510	gaa Glu	gga Gly	gac Asp	tgt Cys	1652
tct Ser 515	cag Gln	gat Asp	aga Arg	aac Asn	tca Ser 520	gag Glu	atg Met	caa Gln	cag Gln	atc Ile 525	ctc Leu	gca Ala	cga Arg	gtt Val	cgc Arg 530	1700
cag Gln	aac Asn	ttt Phe	ggc Gly 535	aaa Lys	atc Ile	aac Asn	gtg Val	ggg Gly 540	cct Pro	cag Gln	ttt Phe	tct Ser	gcg Ala	gat Asp 545	gac Asp	1748
ctg Leu	gtg Val	cct Pro	gtg Val 550	gag Glu	atg Met	tca Ser	gac Asp	ttg Leu 555	gaa Glu	gat Asp	ctg Leu	gaa Glu	agc Ser 560	tct Ser	ggg Gly	1796
gaa Glu	gag Glu	gaa Glu 565	gaa Glu	cag Gln	gag Glu	cag Gln	gaa Glu 570	cag Gln	cca Pro	ggg Gly	gag Glu	gat Asp 575	gcc Ala	gag Glu	gaa Glu	1844

Sequence Listing

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gag cgc tcc cca gac act cag gag gaa cca gtg gga aac gac acc aag 1892
Glu Arg Ser Pro Asp Thr Gln Glu Glu Pro Val Gly Asn Asp Thr Lys
580 585 590

gcc gtg ctc aga gcc ctg gat gag aag att gcc aag tac cag agg ttt 1940
Ala Val Leu Arg Ala Leu Asp Glu Lys Ile Ala Lys Tyr Gln Arg Phe
595 600 605 610

cta aat aaa gct aaa gct aaa aag ttc tct gcc gtc aga ata tcc aag 1988
Leu Asn Lys Ala Lys Ala Lys Lys Phe Ser Ala Val Arg Ile Ser Lys
615 620 625

gac tta agt gaa aag gtt ttt gca aaa tac aaa gaa gag aag aaa aca 2036
Asp Leu Ser Glu Lys Val Phe Ala Lys Tyr Lys Glu Glu Lys Lys Thr
630 635 640

tct gca gaa gac agt gat gca gca ccc acc aaa aag gca agg aag tgg 2084
Ser Ala Glu Asp Ser Asp Ala Ala Pro Thr Lys Lys Ala Arg Lys Trp
645 650 655

gat gca cag atg gaa gaa gaa cct tca aat aag act cag agg atg ctg 2132
Asp Ala Gln Met Glu Glu Glu Pro Ser Asn Lys Thr Gln Arg Met Leu
660 665 670

acg tgt aag gaa cgg agg aga gca gca cgg cag caa caa tcc aaa aaa 2180
Thr Cys Lys Glu Arg Arg Arg Ala Ala Arg Gln Gln Gln Ser Lys Lys
675 680 685 690

gtt ggt gtg cgt tac tac gag aca cac aat gtg aaa aac agg aac agg 2228
Val Gly Val Arg Tyr Tyr Glu Thr His Asn Val Lys Asn Arg Asn Arg
695 700 705

aac aaa aag aag acg agc gac tca gag gga cag aaa cac aga cgc aac 2276
Asn Lys Lys Lys Thr Ser Asp Ser Glu Gly Gln Lys His Arg Arg Asn
710 715 720

aag ttc aga cag aag cag taa ctgcgagaaa gctgtttatt aaattataca 2327
Lys Phe Arg Gln Lys Gln

aaaataaaaa aaaaaaaaaa aagggcggcc gc 2359

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 <212> PRT
 <213> Artificial sequence

<220>
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<400> 14

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1 5 10 15

Ala Ser Thr Asn Pro Asp Arg Val Gln Gly Ala Gly Gly Gln Asn Met
20 25 30

Arg Asp Arg Gly Thr Ile Arg Arg Leu Asn Met Tyr Arg Gln Lys Glu
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Sequence Listing

35

40

45

Arg Arg Asn Ser Arg Gly Lys Val Ile Lys Pro Leu Gln Tyr Gln Ser
50 55 60

Thr Val Ala Ser Gly Thr Val Ala Arg Val Glu Pro Asn Ile Lys Trp
65 70 75 80

Phe Gly Asn Thr Arg Val Ile Lys Gln Ala Ser Leu Gln Lys Phe Gln
85 90 95

Glu Glu Met Asp Lys Val Met Lys Asp Pro Tyr Lys Val Val Met Lys
100 105 110

Gln Ser Lys Leu Pro Met Ser Leu Leu His Asp Arg Ile Gln Pro His
115 120 125

Asn Ala Lys Val His Ile Leu Asp Thr Glu Ser Phe Glu Ser Thr Phe
130 135 140

Gly Pro Lys Ser Gln Arg Lys Arg Pro Asn Leu Phe Ala Ser Asp Met
145 150 155 160

Gln Ser Leu Leu Glu Asn Ala Glu Met Ser Thr Glu Ser Tyr Asp Gln
165 170 175

Gly Lys Asp Arg Asp Leu Val Met Glu Asp Thr Gly Val Arg Asn Glu
180 185 190

Ala Gln Glu Glu Ile Tyr Lys Lys Gly Gln Ser Lys Arg Ile Trp Gly
195 200 205

Glu Leu Tyr Lys Val Ile Asp Ser Ser Asp Val Val Val Gln Val Leu
210 215 220

Asp Ala Arg Asp Pro Met Gly Thr Arg Ser Pro His Ile Glu Ala Tyr
225 230 235 240

Leu Lys Lys Glu Lys Pro Trp Lys His Leu Ile Phe Val Leu Asn Lys
245 250 255

Cys Asp Leu Val Pro Thr Trp Ala Thr Lys Arg Trp Val Ala Val Leu
260 265 270

Ser Gln Asp Tyr Pro Thr Leu Ala Phe His Ala Ser Leu Thr Asn Pro
275 280 285

Sequence Listing

Phe Gly Lys Gly Ala Phe Ile Gln Leu Leu Arg Gln Phe Gly Lys Leu
 290 295 300
 His Thr Asp Lys Lys Gln Ile Ser Val Gly Phe Ile Gly Tyr Pro Asn
 305 310 315 320
 Val Gly Lys Ser Ser Val Ile Asn Thr Leu Arg Ser Lys Lys Val Cys
 325 330 335
 Asn Val Ala Pro Ile Ala Gly Glu Thr Lys Val Trp Gln Tyr Ile Thr
 340 345 350
 Leu Met Arg Arg Ile Phe Leu Ile Asp Cys Pro Gly Val Val Tyr Pro
 355 360 365
 Ser Glu Asp Ser Glu Thr Asp Ile Val Leu Lys Gly Val Val Gln Val
 370 375 380
 Glu Lys Ile Lys Ala Pro Gln Asp His Ile Gly Ala Val Leu Glu Arg
 385 390 395 400
 Ala Lys Pro Glu Tyr Ile Ser Lys Thr Tyr Lys Ile Glu Ser Trp Glu
 405 410 415
 Asn Ala Glu Asp Phe Leu Glu Lys Leu Ala Leu Arg Thr Gly Lys Leu
 420 425 430
 Leu Lys Gly Gly Glu Pro Asp Met Leu Thr Val Ser Lys Met Val Leu
 435 440 445
 Asn Asp Trp Gln Arg Gly Arg Ile Pro Phe Phe Val Lys Pro Pro Asn
 450 455 460
 Ala Glu Leu Pro Thr Asp Ser Gln Leu Pro Pro Ser Ser Pro Leu Glu
 465 470 475 480
 Val Pro Thr Glu Thr Thr Gln Asn Asn Pro Glu Glu Glu Thr Thr Glu
 485 490 495
 Thr Glu Val Glu Arg Ser Asp Ser Ile Thr Glu Lys Glu Pro Glu Gly
 500 505 510
 Asp Cys Ser Gln Asp Arg Asn Ser Glu Met Gln Gln Ile Leu Ala Arg
 515 520 525
 Val Arg Gln Asn Phe Gly Lys Ile Asn Val Gly Pro Gln Phe Ser Ala
 530 535 540

Sequence Listing

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Asp Asp Leu Val Pro Val Glu Met Ser Asp Leu Glu Asp Leu Glu Ser
545                               550                               555                               560

Ser Gly Glu Glu Glu Glu Gln Glu Gln Glu Gln Pro Gly Glu Asp Ala
565                               570                               575

Glu Glu Glu Arg Ser Pro Asp Thr Gln Glu Glu Pro Val Gly Asn Asp
580                               585                               590

Thr Lys Ala Val Leu Arg Ala Leu Asp Glu Lys Ile Ala Lys Tyr Gln
595                               600                               605

Arg Phe Leu Asn Lys Ala Lys Ala Lys Lys Phe Ser Ala Val Arg Ile
610                               615                               620

Ser Lys Asp Leu Ser Glu Lys Val Phe Ala Lys Tyr Lys Glu Glu Lys
625                               630                               635                               640

Lys Thr Ser Ala Glu Asp Ser Asp Ala Ala Pro Thr Lys Lys Ala Arg
645                               650                               655

Lys Trp Asp Ala Gln Met Glu Glu Glu Pro Ser Asn Lys Thr Gln Arg
660                               665                               670

Met Leu Thr Cys Lys Glu Arg Arg Arg Ala Ala Arg Gln Gln Gln Ser
675                               680                               685

Lys Lys Val Gly Val Arg Tyr Tyr Glu Thr His Asn Val Lys Asn Arg
690                               695                               700

Asn Arg Asn Lys Lys Lys Thr Ser Asp Ser Glu Gly Gln Lys His Arg
705                               710                               715                               720

Arg Asn Lys Phe Arg Gln Lys Gln
725

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